# Visit Report Of Water Treatment Plant At Puikhadi, Kolhapur On 24<sup>th</sup> Sep, 2022

# **ACKNOWLEDGEMENT**

We student of T. Y. B. Tech Civil engineering are gladly thankful to Prof. (Dr) S. N. Sapali Director Sir, B. Tech Program - Civil Engineering Coordinator Prof. Mahesh S. Salunkhe Sir and Faculty has allowed us to visit at water treatment Plant, Puikhadi, Kolhapur.

Also, thankful to Er. Harshjit Ghatage (Water Engineer, Municipal Corporation, Kolhapur) because they granted permission to water treatment plant at Puikhadi, Kolhapur, Mr. Uttam Jadhav, Aniket Powar (Supervisor) and Prof. Yogesh S. Vatkar Sir has given the proper information and guidance to us about WTP.

#### INTRODUCTION

As a part of academic visit by B. Tech Civil Engineering Program level of Department of Technology, Shivaji University Kolhapur has arranged an academic visit to Water Treatment Plant, Puikhadi, Kolhapur at 24<sup>th</sup>, September 2022.

Under the guidance of Asstitant Professor Mr. Y.S. Vatkar Sir, We 75 students visited to WTP Puikhadi, Kolhapur. Supervisor of WTP has given information and guidance about the existing working of Water supply scheme, Phase-I, Part-I constructed WTP at Puikhadi capacity- 60 MLD and Water supply scheme, Phase-II, Part-I constructed WTP at Puikhadi capacity- 20 MLD from Kalammawadi Dam.

The raw water collected from river near Shignapur are lifted Siphon ally to Aptenagar area then pumped and forwarded to Puikhadi WTP for treatment Process. Every day, this plant treated water having capacity of 60 MLD and treated water supplied to Kolhapur A and B ward for drinking purpose.

We understand the raw water treatment process done by step by steps as follows:

# 1) Aeration Fountain:

- i) R.L. 636.500 M
- ii) Diameter 9.0 meter,
- iii) No. of Cascades 5 Trade of Cascade: 0.75 m, Rise of Cascade: 0.15 m,
- iv) Diameter of Inlet -1.2 meter,
- v) Designed Capacity 84 MLD.



**Photo No.1 Aeration Fountain** 

# **Objective:**

- 1) To eliminate unneeded dissolved gases such as (CO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>).
- 2) To increase D.O. level in water.

# 2) Parshall Flume & Elevated Channel:

- i) F.S.L.RL 535.500 M
- ii) Width -1.75 m,
- iii) Depth of water -0.70 m,
- iv) Free Board -0.30 meter,
- v) Designed Capacity 84 MLD.

# 3) Flash Mixure:

- i) F.S.L.RL 634.450 meter
- ii) Size 5.05 meter X 3.80 meter,
- iii) Depth of water -4.25 m,
- iv) Designed Capacity 84 MLD.

# 4) Clariflocculator:

- i) F.S.L.RL 633.750 meter
- ii) Nos- 2 No's, Capacity- 60 MLD/No.,
- iii) Side depth of water -3.50 m,
- iv) Diameter of inlet shaft 1.0 meter & Diameter of Flocculator 15.20 meter/No.
- v) Diameter of Clarifier 37.25 meter/No.

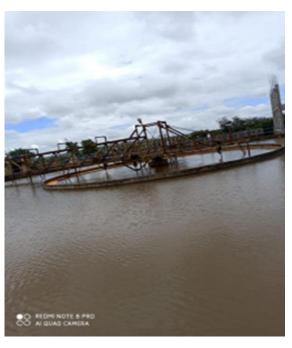


Photo No.2 Clariflocculator Tank

# **Objective:**

1) Flocculation is mixing process in which suspended particles are brought into contact in order to promote their agglomeration.

# 5) Rapid Sand Filter Beds:

- i) No. of Beds -8 Nos.,
- ii) Designed Capacity 60 MLD of 7 Beds & 1 Bed Stand by.
- iii) Size of Beds: 7.5 meter X 4.0 meter for 1 Section, 2- Sections for each bed,
- iv) Area of each Filter Bed 60 Square Meter,
- v) Manifold 0.75 M X 0.9 M R.C.C. Laterals 80 mm ØA.C CL III23 X 2 Nos.

#### Filter Media:

- A) Supporting Gravel Media: 0.45 meter,
- B) Quartzite Sand: 0.70 meter.

Filtered water pipe Ø: 250 mm, Back Wash Pipe Ø: 350 mm



**Photo No.3 Rapid Sand Filter Beds** 

# 6) Wash Water Tank:

- i) F.S.L.RL 642.500 & Bottom R.L.: 640.150
- ii) Capacity 7, 00,000 Litres.

#### 7) Chemical Tanks:

- i) Alum Tank 6 Nos, Capacity- 6000 Ltrs/No.
- ii) Soda Tank 2 Nos, Capacity- 6000 Ltrs/No.
- iii) TCL Tank 6 Nos, Capacity- 6000 Ltrs/No.

# 8) Master Balancing Reservoir:

- i) F.S.L.RL 630.000 & Outlet R.L. 627.000
- ii) Capacity 70, 00,000 Litres.

# 9) Re-circulation Tank:

- i) F.S.L.RL 626.700 & Bottom R.L.: 623.700
- ii) Capacity 30, 00,000 Litres.

After treatment of water passes or flows through all distinctive features, it's collected into a specific elevated water tanks and ready to be supply to many houses area as per daily demand. The water distribution is done statistically as per requirements for a combination of domestic, commercial, industrial and fire-fighting purposes.

# **CONCLUSION**

The treatment of water plays an important role in human life, whether for daily routine purpose for demand of water per day per capita for the Kolhapur city. This WTP visit has given the information about the sources of raw water and on large scale for purification process. Also, understand the design and a systematically the working process of WTP at Puikhadi. Kolhapur.



Photo No. 4 WTP Site Visit.